

THE CROSSLAND STEAM CAR



"The Pulse of the Universe"
CROSSLAND PFAFF ENGINEERING LABORATORIES

CHICAGO.

ILLINOIS

INTRODUCTORY.

Put yourself in my place. Here I was, a man who had grown up with the Automobile business; lined up with one of the largest motor concerns in America, whose product I pioneered, doing very well. But I was not satisfied. I had the desire to expand, to grow. I wanted to grow and increase the size of my activities, from local application to Universal. I wanted the fighting feeling of quality and quantity growth combined—I wanted the feeling of having accomplished a purpose for the benefit of mankind and therefore devoted my spare time to the study of Steam and its application to the Automobile realizing there was a long felt want for this new power, whose superiority was manifest in every conceivable test with the Internal Combustion Engine. Steam was indeed not new to me, I had sidetracked it for this power—the Internal Combustion Engine. After realizing the many faults of the gasoline motor, I returned to the problem of Steam for the Automobile.

How many times did I picture to myself an ideal Steam Car! This is what I wanted: a new power, a new Automobile a big Luxurious Motor Car of distinctive design possessing a new grace of line, when viewed from any angle. A car su-

preme for smooth running in which every expectation would be realized, scientifically engineered throughout, combining reserve power and speed with unusual lightness, eliminating complication, making simplicity of operation a predominant factor.

An organization built on a progressive, vital, new motor-value idea; solid, modern business men associates; a healthy democratic method of capitalization; full freedom to work out my own ideas in my own way with such an organization.

My desire has been: Something so big, whose magnitude was unlimited, where I could hurl every ounce of my energy, every atom of my brain power, every second of my time into it and make the world know it is big: Now I have my chance with the CROSSLAND STEAM CAR, which is the creation of my brain.

I have at last accomplished this desire, both as to power and design.

CROSSLAND STEAM CAR.

LET us tell you a story that will, we believe, be the most interesting you have ever read. After you have finished, let us have your verdict.

Steam is without question, the ideal source of power for self-propelled vehicles. It is the most direct, the most flexible, the most potent of all power impulses; it is also the simplest and most easily controlled.

The CROSSLAND STEAM CAR utilizes to the fullest extent all these well known advantages of steam; at the same time greatly simplifies their application to motor vehicle requirements.

The power plant of the CROSSLAND STEAM CAR has only 29 moving parts, of which 16 are in the engine. Can you conceive the simplicity of it? Complication entirely removed. There is no clutch, no gear set, no complicated driving mechanism. Another thing of very vital importance is the fact that you have at all times stored up energy to be used in the emergency. In the event of crossing a railroad track it is utterly impossible to kill your engine as

this stored up energy is ready to be used at all times. You can turn off your fuel and will have sufficient head of steam to run your car from 3 to 5 miles, and all the power is absolutely delivered to the rear wheels.

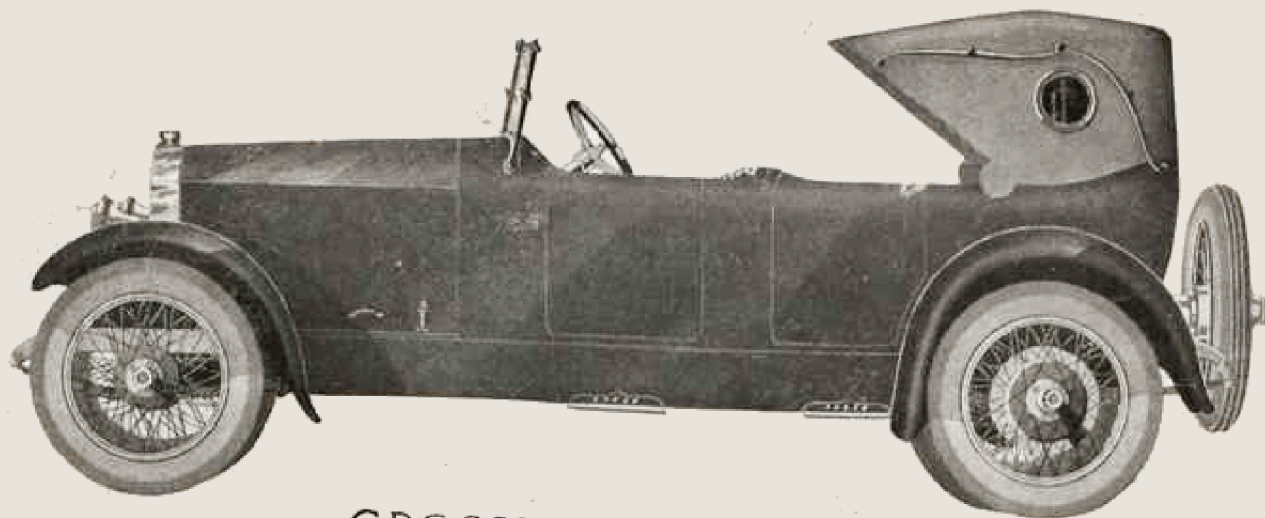
The CROSSLAND STEAM CAR will climb any hill upon which the wheels can find traction; and because of the evenness of the torque and the availability of all the power at low speeds, it will plow through sand or find traction in slippery places where other cars would be utterly helpless.

One of the biggest factors for the assurance of its immediate success is its economy. We use exclusively Kerosene for fuel; Gasoline is not necessary even for starting purposes. Wear of parts and wear on tires are practically nil as compared to internal combustion types due to the fact of its smoothness in operation and running thereby avoiding all vibration that is always constant in a throbbing gasoline motor. It means three to four times the life of the car, which is one of the most vital questions today in the merchandising of automobiles.

THE FAWN

(FIVE PASSENGER)

Perfection in design, and appointment is particularly noted in this model, which is distinctive to the smallest detail—Superior riding qualities in the Crossland are arrived at through absolute perfect balance and perfect distribution of weight. An added distinction is the new Streamline which is exclusive in the Crossland.



CROSSLAND STEAM CAR
Designed by Harry Crossland Pfaff

QUESTIONS AND ANSWERS.

Q.—Is our fuel-lighter any better for the handling of Kerosene than the one that is used in competitive steam cars, or is it as good?

A.—One of the advantages in ours is that we do not have an electric current to ignite our fuel; we do not use a match, torch, nor spark. There is no renewal of spark plugs. We ignite our fuel chemically, which is absolutely positive. We atomize our fuel; then we ignite it instantly. After the fuel is ignited we produce steam enough to move the car in about half a minute. The reason we can do this in so short a time is, that we have adequate heating surface with water on one side of the tubes and products of combustion on the other side, combined with a perfect circulation in the boiler.

Q.—Is there any other type of boiler used in automobiles using a water circulation?

A.—No, not in a true sense. Some have circulation in the liquid itself, due to the difference in specific gravity, but this is retarded owing to counter-current in the mass of liquid. Others of the flash or semi-flash type have water coming in at one end and steam going out of the other.

Q.—What is the method of circulation in the flash type of boiler.

A.—Water comes in at one end of the tube and passes out at the other as steam. In the fire-tube boiler the circulation is simply in the liquid itself; down in some parts of the liquid and up in others according as some parts are hotter than others.

Q.—What about the semi-flash boiler?

A.—The semi-flash boiler has the same method of circulation as the flash type except that a water level is maintained in the tube.

Q.—What is the type of our boiler?

A.—Our boiler is a water tube boiler in every sense of the word. The water flows in a circuit through the tube, passing upward where the tubes are hottest and flowing downward in the colder tubes to fill the space left vacant by the rising water.

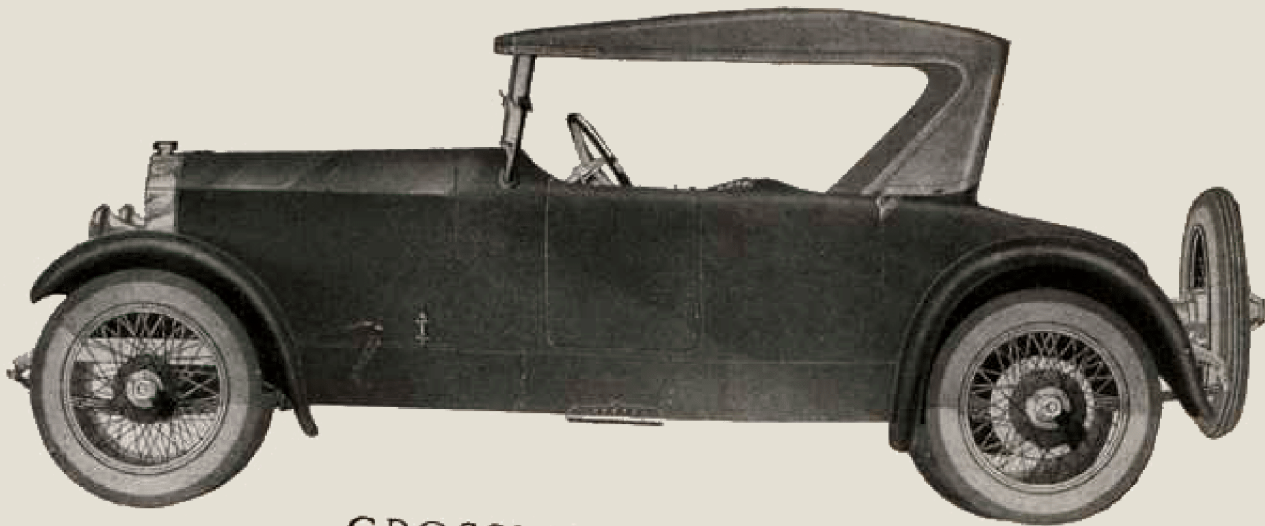
Q.—Is there any particular advantage in this type of boiler over the fire-tube?

A.—Yes, the flow of water is unobstructed by counter-current; that is, it is constantly in one direction and meets no opposing currents going in the opposite direction.

THE STAG.

(FOUR PASSENGER)

This model boasts of comfort, luxury, beauty and excellent appointment, which is the character of the Crossland product. Refinement in coach work; simplicity; built upon sound principles which have remained unchanged since the beginning of time—STEAM.



CROSSLAND STEAM CAR
Designed by Harry Crossland Pfaff.

Q.—Is that an advantage in generating steam?

A.—Yes. The greater ease with which the circulation takes place, the easier the steam is freed from the surface of the water and the more heat units can be extracted for a given area of tubes. In our boiler we have a large water surface, from which the steam easily escapes to the steam space. This is a great advantage over the flash or semi-flash type which has a very restricted area. We have a large steam space over our water surface which affords us a certain amount of reserved power and also gives us dry steam. The flash and semi-flash boiler have practically no reserve power and due to their small water surface, have a tendency to give wet steam.

Q.—Are we going to super-heat our Steam?

A.—Yes, with a new type of super-heater.

Q.—What about the condensing system? What mileage will you get from a 25 gallon tank of water?

A.—We will get at least 800 miles on the minimum. The reason we do this is because we will have a condensing outfit which is proportionate to the amount of steam we will use. We will aid our condensation by a compensating device, which gives us more effective condensation under

full load. Another very vital thing is that we have sixteen times the area for condensation of any steam car in existence today.

Our generator is the only one so constructed that is absolutely self-cleaning in every respect. All the passages which connect the various parts of the generator are inclined in a direction to direct sediment deposits therein, towards the blow-off pipe, located at the lower point of the water circulation passages. With this arrangement, all sediment in every part of the steam or water passages or chambers of the generator will be automatically assembled at one point in the generator, where the same may be readily and quickly removed. Our generator is the first ever constructed that is absolutely flexible and is not affected by the weaving of the vehicle.

Statements we have made herein are all taken under the worst conditions and are not made under normal operation of the car. Therefore, the power plant is fully adequate for any and all circumstances or condition under which it may be placed to operate. Under normal conditions this insures us more than satisfactory results. The **CROSSLAND STEAM CAR** will show a very much lower cost per mile than can be obtained from any internal combustion motor vehicle

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SPECIFICATIONS.

Body—

Perfect Stream Line.

Color—

Body, hood and wheels, Marshall Field Green; black mud guards.

Upholstery—

Genuine grain leather, black, hand buffed. Curled hair stuffed, inclined cushions, 10½ inches deep.

Top—

One man type, with instant curtains. Plate glass window in rear curtain. Curtains open with doors.

Windshield—

Slanting, our own design; single glass with rain vision shield; ventilating type.

Lights—

Large headlights with dimmers below reflected to road. Dash and tail-light. Auxiliary light with long cord. Delco generator and Utility storage battery.

Horn—

Two tone electric. Under hood. Button above quadrant on steering post.

Steering gear—

Worm and Gear type. Warner design.

Wheel base—

131 inches with standard 56 inch tread.

Wheels—

32 x 4½, Houk Wire Wheels, Vanadium Steel Spoke construction. Artillery wood type optional.

Tires—

Mason Cord, rib tread front, anti-skid rear, 33 x 5 over-sized.

Springs—

Semi-elliptical front and rear with reversible Shackel which carries entire load on the Springs and not on the shackel, insuring wonderful riding qualities, our own special design and construction.

Frame—

Channel section pressed steel 7 inches deep with six extra heavy supporting cross-members.

Front Axle—

Standard Timken Heavy Duty. Over-sized for weight of car.

SPECIFICATIONS.

Rear Axle—

Standard Timken Extra Heavy Duty. Our own design differential and housing.

Brakes—

Two. Expanding and contracting. 14 inch drum.

Engine—

Two cylinder, 5 x 4 double acting. Uni-flow type; bolted in Unit with rear axle and geared direct with differential ring gear.

Boiler—

Standard Crossland design. Water tube, sectional. Positive water circulating type, with Superheater combined.

Burner—

Standard Crossland design. One, three and five battery construction assuring the greatest economy, atomizing type operating on 2 to 4 pounds pressure.

Fuel Tank—

At rear of car; 22 gallon capacity. Kerosene fuel.

Water Tanks—

Suspended under car on frame. 25 gallon capacity in cold water tank. 11 gallon capacity in hot water tank.

perfectly insulated preventing any possibility of freezing. Self cleaning. Our own design.

Pumps—

Long stroke, steam driven. With auxiliary pumps for extreme emergencies. Our own design.

Condenser—

Our own special design suspended under the car. Having an area for condensation equal to 16 times the largest radiator construction. Sufficient for 800 miles running on one filling of water tank.

Air Tank—

Suspended along channel of frame.

Lubrication—

Engine and differential assembly enclosed in one unit and run in oil bath. Cylinders lubricated from pump supplied by oil tank from under seat.

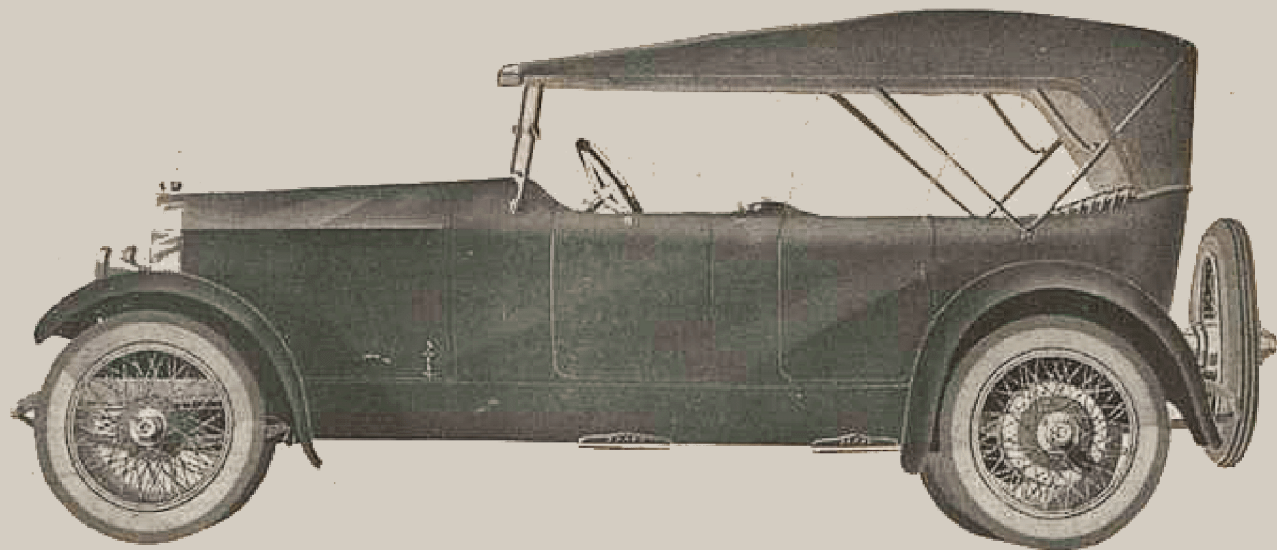
Instrument Board—

Steam gauge; fuel gauge; water gauge; oil sight feed; Ammeter; Stewart Warner Speedometer; and 8 day Standard clock.

THE DRAGON.

(FIVE AND SEVEN PASSENGER)

This model carries the same perfection of grace that predominates in the Crossland Product, combined with sturdiness, flexibility and instantaneous exhilaration. Careful attention has been given to color schemes in upholstery and paint, which offers perfect harmony.



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of equal size now in use. Taking into consideration the weight of our car, the balance and the power impulse of our engine, we should get eighteen miles on the minimum to a gallon of Kerosene, which in itself is a big item of economy. We are more economical in the consumption of fuel than any steam car on the market. We are lighter in weight, more modern in design, and our argument being, we have developed this car with a scientific knowledge of the elements we are using, which has not been true of any steam development to date.

We have 121 square feet of heating surface which is practically double the amount of any competitive Steam Car to one gallon less of water, which insures us twice the steaming capacity and instantaneous generating of steam.

Steam, known by every engineer in the universe to be the greatest power we have, and something that is really tangible, something permanent, with every obstacle of the internal combustion engine eliminated, superior power, less complication, absolute simplicity in its every detail, wonderful economy, entire loss of vibration. The effect of its

operation is identical with the smoothness of an electric vehicle, only steam has about thirty times more stored up power or energy than the electric battery has. The internal combustion engine develops its maximum power at a certain number of revolutions. After it has reached this peak, it lops off in power. This is not true of Steam as the more you run and the harder you pull the more power you develop. The present day steam cars cannot operate faster than 30 to 35 miles an hour all day long and maintain steam. In our boiler we can operate at 70 miles an hour and maintain our steam indefinitely.

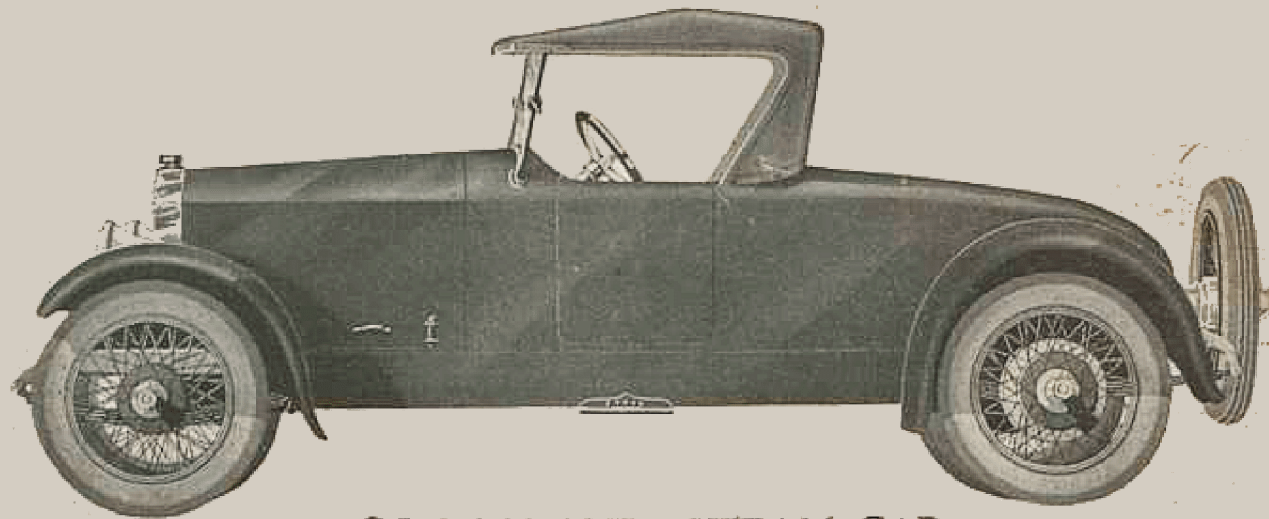
One of the big faults of the present day steam car is their inability to pump sufficient water on grades to maintain steam. We pump on the level more water than competitive steam cars and have auxiliary pumps for steep grades and hills that operate at ten times engine speed to maintain a water level in this extreme emergency. We do not drive our pumps or electric generator off of our rear axle as do competitive steam cars, but drive off of our drive shaft, which is the proper place. Our water tank is so constructed

THE GREYHOUND.

(TWO AND THREE PASSENGER)

The owner of this model can be justly proud. It boasts of perfect symmetry in design, it is in a class by itself. The soft deep cushions offer luxurious comfort, combined with speed—Unsurpassed.

(Closed models will offer entirely new and distinct lines, which are exclusive features found only in the Crossland.)



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that its action is identical with a cream separator, eliminating the complication. In other words, we can remove all sediment and deposits therein so that it cannot again get to the boiler in the event that it should pass through into the condenser.

There are numerous features in the car itself which should be seen in order to be appreciated. We have endeavored in the building of this power plant to eliminate the complications that have existed in the steam car to date by making it absolutely fool-proof and automatic in every respect, and not depending on one automatic action, but on several in the event that one should fail. Our boiler is so constructed that it is in numerous sections and is removable in about twenty minutes, put it in the back seat and you can be on your way, and you can do this with half of the boiler and still have sufficient steaming capacity to carry you wherever you want to go. This is not true of competitive cars, which means that if you get a collapsed tube you lay up the entire car to have it fixed as it is not removable.

It is utterly impossible to burn out your boiler in the CROSSLAND STEAM CAR, as when your water reduces its water level below normal your fires go out automatically and it is impossible to light them again until you have replenished with water.

We have decided to build the CROSSLAND STEAM CAR within a range of price from \$1,000.00 to \$2,650.00. In this price-class this will put us absolutely alone in the Steam field. Think what that means! We do not use a radiator—but put a dummy on the car merely to keep from deviating from the usual in automobile design, as some peculiar front end would, in our opinion, be a sales resistance, and our design will keep away from this error.

In the design of the CROSSLAND STEAM CAR Mr. H. Crossland Pfaff has produced an absolutely new and distinctive creation which has been pronounced sensational in the Automobile Industry.

POINTED PARAGRAPHS OF FACTS.

Big business has been the great factor in the world's progress. It is an easy matter to trace the development of it. Large scale production began with the invention of the *Steam Engine*. Before that period, business was local. Your shoes were made by the neighborhood shoemaker; your furniture was made by a local cabinet maker. But *Steam* enabled these articles and all others to be manufactured in quantities. Business began to spread. *Steam* applied to the Locomotive was the next step. That afforded the means of distribution which made *Steam* the cause of big business reaching over the entire world.

Stop a moment and think! What would our Railroads do without *Steam*? The superiority of its power is manifest in our largest institutions; without it they would be entirely useless. What about our Ocean Liners? Think of its magnitude. The world and its millions depend entirely upon it. It is—

"The Pulse of the Universe."

The Universe Lighted and Moved by Steam.

Myriads of people to be whirled daily to and from their work and play—by Subway, Elevated and Surface Lines. Cross Country travel by the *Hundred Thousands*.

Offices, Shops and Homes by the *Millions*, Leagues of Streets, a Skyful of Electric Signs—to be lighted.

ALL BY STEAM

THE POWER THAT MOVES THE WORLD.

"From nothing per mile to the limit of your nerve."

No human dare open the throttle for five minutes to its limit.

The *CROSSLAND STEAM CAR*. The most Powerful, the most Economical, the Fastest and the Slowest car in the world.

The cost of mechanical upkeep will be, not to exceed 1/10 that of a high grade Gasoline Car.